



Traffic re-routed at Gate 9 while construction continues

by Debra Valine

Construction at Gate 9 at Rideout Road entered Phase II of a three-phase project this week. This phase is expected to last 75 calendar days, including holidays and rain days.

Phase I of the project, which started around Nov. 15, lasted about two months.

Phase II requires the closing of the three inbound lanes and routing the traffic to two lanes on the west side — the newly paved area. "We will maintain two lanes that are open to traffic," said Lee Riddle, project manager for construction at Gate 9 with the Directorate of Public Works at Redstone Arsenal. "We had to allow enough room for the contractor to have a safe and adequate construction area."

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File photo

X-34 under construction

Engineers and technicians from NASA and its industry partner, Orbital Sciences Corp., install computers, electronics, hydraulics, landing gear and other equipment needed to convert the X-34 structural test article into a real flying machine at the Orbital Sciences Corp. facilities in Dulles, Va. The X-34 is managed by the Marshall Center.

Astronomers end year with a bang

NASA uses teamwork to learn about one of the most powerful explosions in the universe

by Tracy McMahan

Scientists from around the world have taken advantage of NASA teamwork to quickly locate and observe a gamma ray burst — one of the most violent events in the universe.

Astronomers pinpointed the precise location of the blast on Dec. 16, 1999, by using coordinated observations from the Marshall-managed Burst and Transient Source Experiment (BATSE), and the Rossi X-ray Timing Explorer operated by Goddard Space Flight Center in Greenbelt, Md.

"This is the first major success in using instruments on two

NASA satellites to locate a burst quickly," said Dr. Marc Kippen, a University of Alabama in Huntsville astrophysicist working on the BATSE team at the Marshall Center.

It can take several hours to reprogram a spacecraft to point to a source. By then the afterglow left by the burst explosion is usually too faint to be detected. That is why Marshall's Burst Experiment, designed specifically to detect elusive gamma ray bursts, is usually the first — and sometimes only — instrument to detect these mysterious explosions.

The Burst Experiment apparatus includes eight detector modules mounted on the corners of NASA's Compton Gamma Ray Observatory orbiting Earth. BATSE's ability to see gamma ray bursts across most of the universe has given scientists the most information ever obtained on bursts. But the detectors' ability to see gamma ray

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"Keep Safety Strong, You Can't Go Wrong"
— Safety slogan submitted by
Marvin Rocker, TD63

Global warming

Marshall scientist hopes new study will help resolve controversy

by Rick Smith

A Marshall Center researcher working with a team of American and British investigators at the behest of the U.S. National Research Council, hopes a new joint study will shed additional light on the global warming phenomenon.

According to the report, "Reconciling Observations of Global Temperature Change," the reality of global warming is not disputed. Just how much global warming the Earth has experienced is the point of contention among many researchers, said Roy Spencer, senior NASA scientist for climate studies at the Global Hydrology and Climate Center. Estimates range from negligible change to a rise of 0.4 or 0.5 degrees Celsius over the last 20 years.

The report was issued during the annual conference of the American Meteorological Society in Long Beach, Calif. Its purpose: to help resolve debate caused by differences between satellite measurements, which in the last 20 years have shown very little cumulative atmospheric warming, and surface-based measurements that have shown substantial warming during the same period.

Spencer and his Global Hydrology Center colleague John Christy, a professor of atmospheric sciences at the University of Alabama in Huntsville, have tracked global temperatures continuously for NASA since January 1979. Unlike ground-based studies, their measurements come from Earth-orbiting satellites that record minute thermal changes in the

Earth's lower and middle troposphere, which extends from the planet's surface to roughly 6 miles above sea level.

"Whereas climate models have predicted the layer should warm about 25 percent faster than the surface," Spencer said, "satellite studies have shown that warming of the lower and middle troposphere over the last 20 years has been substantially less than that measured at the surface." Those results have been corroborated by weather balloon data, he added.

Spencer and Christy's first concern is the accuracy of their measurements, not the origin of global warming, Spencer said. They are not trying to refute existing studies, or point to a definitive cause for the trend. Rather, it is their hope to provide a more comprehensive overview of the global situation, using the latest in space technology to augment ground-based measurements.

The evidence reviewed by the National Research Council panel led them to conclude that recorded differences between surface and upper air trends over the past two decades are "at least partially real," according to the report.

While the report does not attribute the surface warming to a particular cause, it does address possible reasons why the upper air may have warmed less rapidly than the surface. These reasons include both natural factors and human activities. The report also cites the susceptibility of surface- and satellite-based instruments and measuring techniques to some degree

of error, leading to the disparate findings.

"The final consensus of the NRC study team is that satellite measurements do not refute the fact that surface temperatures have been rising," Spencer said. The study concludes that further research is needed to fully explain the differences between surface and tropospheric global warming trends.

"High-quality measurements are key to understanding this phenomenon," Spencer said. "It could take many more years of satellite-based and ground-based measurements before we can say just how much warming is the result of human activity as opposed to natural climate fluctuations."

Members of the National Research Council's commission included researchers from the University of Washington in Seattle; NASA's Goddard Institute for Space Studies in New York, N.Y.; the National Center for Atmospheric Research in Boulder, Colo.; the National Oceanic and Atmospheric Administration's Air Resources Laboratory in Silver Spring, Md.; the National Climatic Data Center in Asheville, N.C.; the National Environmental Satellite, Data and Information Service in Camp Springs, Md.; the Lawrence Livermore National Laboratory in Livermore, Calif.; Remote Sensing Systems in Santa Rosa, Calif.; and the Hadley Centre for Climate Prediction and Research in Berkshire, U.K.

The writer, a contractor employed by ASRI, supports the Media Relations Department.

It's on the Web

Goldin discusses accomplishments; Chandra images unveiled

NASA Administrator Dan Goldin discusses the agency's 1999 accomplishments online at: <http://inside.msfc.nasa.gov>

Other Marshall news releases also are available on the "Inside Marshall" Web site.

Also on the Web, a suite of new Chandra X-ray Observa-

tory images probing the mysteries of celestial objects was unveiled during the American Astronomical Society's national meeting in Atlanta Jan. 11-15.

For detailed news releases and photos, visit the Chandra news Web site at:

<http://chandra.nasa.gov>

Next generation scientist

Dr. Don Gillies, right, the discipline scientist for Marshall's Material Sciences in Microgravity, shows Carl Dohrman, the 1999 American Society for Metals International Merit Scholar, a model of dendrites. Dendrites are the tree-branch-like structures found in many metals and alloys. The University of Illinois at Champagne student recently visited Marshall.

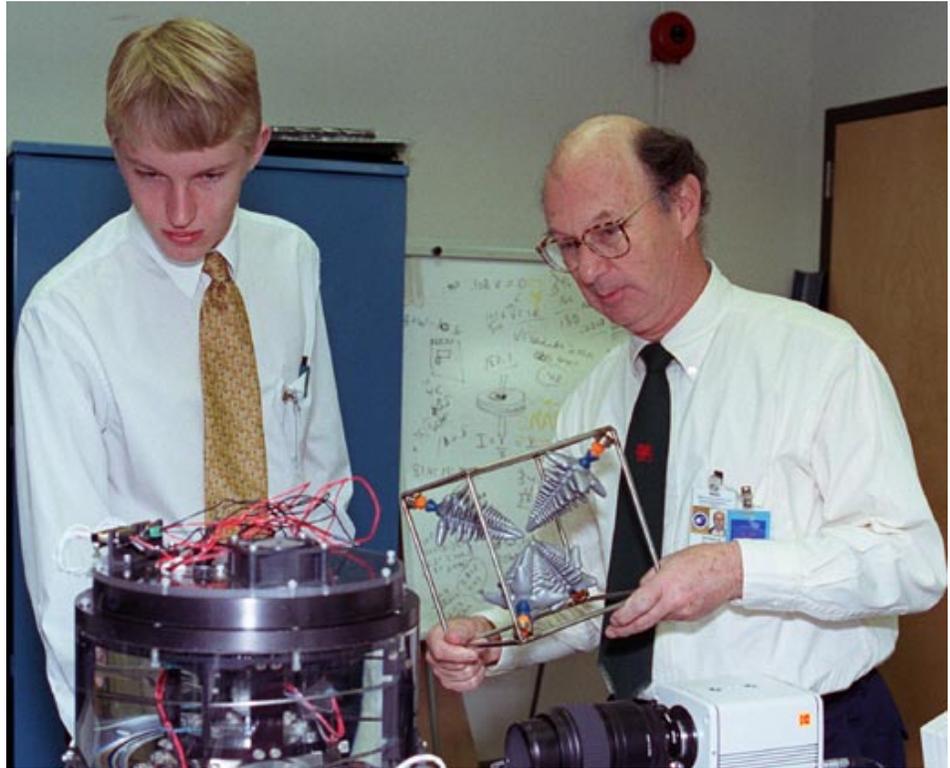


Photo by Doug Stoffer, NASA/Marshall Space Flight Center

Traffic

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During this newest phase, construction will involve two islands, footing construction, steel erection and associated construction for an overhead canopy that will match the façade of the guardhouse. The lane for vehicles needing decals will be lengthened to allow greater ease of registration.

"Initially there will be a change in people's driving habits from what they are now," Riddle said. "It will take several days to get people acclimated to driving in the two west-side lanes. Hopefully, we will have most of the vehicles needing decals in the left lane. If you know where you need to be in advance, it will make it easier."

There will be a follow-up Phase III that will include constructing a third island and an extension to the overhead canopy. "We scheduled the project in three phases to maintain two lanes of traffic at all times while still allowing the work to be done," Riddle said.

"Traffic during Phase III will be divided on either side of the construction zone," Riddle said. The two inside lanes will be completed. The non-decal registration lane will be lengthened and placed back in service. The left lane and temporary right lane will be open to through traffic.

The next phase should be less restrictive than the current phase, he said. How restrictive the traffic pattern will be will depend on the motorists, and how the security people handle the flow of traffic.

"We may need to make some minor adjustments to keep

inconveniences to a minimum," Riddle said. "Try to be as courteous as you can. If someone needs to merge, just let them, because they probably need to be in the lane for vehicles without decals."

While traffic at Gate 9 so far this week has not been too heavy, Capt. Autry Sparks of the Arsenal's Security Guard Force Branch said security guards and military police will work to make the morning commute as smooth as possible. He said the biggest problem the guards have is that people drive too fast.

"Leave home a little earlier so that you do not have to rush," Sparks said. "Make sure you use all safety precautions when driving through the gate. Observing the 10-mph speed limit will help tremendously."

Other possible causes for traffic delays include traffic merging onto Rideout Road from both directions of Interstate 565, vehicles running out of gas and vehicles in the wrong lane that need visitor passes.

Sparks advised motorists to be alert for their own safety and that of the security guards. "Sometimes it's hard to see the security guards because it's too dark," Sparks said. "We try to accommodate the community as much as possible. We will make getting through the gate as comfortable as possible during the construction."

Construction also continues at Gate 4 on Patton Road near Neal Road.

The writer, a contractor employed by ASRI, is the Marshall Star editor.

Around Marshall

Leadership Forum — A Leadership Forum from 1:30-3 p.m. Feb. 1 in Morris Auditorium kicks off Black History Month activities. Panelists will discuss the key leadership competencies and skills for effective leaders, ways to improve leadership skills and the most important future leadership challenges.

Cultural Diversity — Spaces are available in the Jan. 26-27 Cultural Diversity class to be held from 8 a.m.-4:30 p.m. both days at the University of Alabama at Huntsville (UAH), Wilson Hall, room 104. Civil service employees may register via AdminSTAR, or send an e-mail to Laura Groce.

Defensive Driving — Four defensive driving classes have been scheduled for civil service employees. The course discusses driving under the influence, road rage and unsafe driving behaviors and driving conditions. The class will be from 12:30-4:30 p.m. on Jan. 31, Feb. 28, March 20 and April 17. Register via AdminSTAR.

Internet Security — An introduction to Internet security class will be held from 8 a.m.-4:30 p.m. Jan. 25-27 at the Tom Bevill Center on Sparkman Drive, room 284. The course introduces the fundamentals of information technology security and Internet concerns. For more information or to register, call Francee Logston at 544-3930 or Charlie Petty at 544-0885.

Census Takers — The Department of Commerce is looking for up to 3 million census takers for Census 2000. Active and retired federal employees are eligible to apply for the appointments. For more information, call 1-888-325-7733.

Job Opportunities

Reassignment Bulletin: 00-11-MB, Program Analyst, GS-343-11/12, in the Space Shuttle Projects Office within the Business Management Office, External Tank Project. Closes Jan. 25.

Reassignment Bulletin: 00-12-MB, AST, Technical Management, GS-801-13, in the Space Shuttle Projects Office, External Tank Project. Closes Jan. 25.

CPP 00-29-RE, AST, Technical Management, GS-801-14, in the Space Transportation Directorate, Vehicle & Systems Development Department, Engine Systems Engineering Group. Closes Jan. 28.

CPP-00-30-RE, AST, Aerospace Flight Systems, GS-861-14, in the Space Transportation Directorate, Development Projects Office. Closes Jan. 31.

CPP-033-KP, Management Analyst, GS-343-7/9/11, in the Systems Management Office. Closes Jan. 31.

Gamma Rays

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bursts across most of the universe reduces their precision in determining burst locations.

To locate bursts more accurately, Marshall's BATSE team worked with the Rossi Explorer team to develop a way to get information to the Rossi satellite so that it could quickly aim toward the burst and record information before the explosion's glow faded. Rossi pointed toward the burst and recorded data within four hours of the burst.

"We determined the burst location so precisely and so quickly that we had enough time to send information to other telescopes, like the Chandra X-ray Observatory," said Kippen. "These bigger observatories need more precise information and even more time to aim at a burst. Usually by the time we have enough data on a burst's location, it has already faded and can't be seen by other observatories."

NASA's space-based Chandra Observatory, managed by the Marshall Center, was able to swing into position and catch the fading embers of the burst four days after the explosion, providing data on X-rays released by the blast.

Other observatories in space and on the ground recorded the energy being released from the blast in the form of gamma rays, X-rays and visible and radio waves. Using a variety of spacecraft to record different signatures of visible and invisible energy will enable scientists to learn more about these mysterious explosions.

"It was an excellent opportunity for Chandra to make its first observation of a gamma-ray source," said Dr. Gerald Fishman, principal investigator for the Burst and Transient Source Experiment at the Marshall Center. "The coordinated effort shows the value of spacecraft and people working together to make exciting observations that could not be made by one single observatory."

The reward for the years of effort to obtain this set of complementary observations is the large volume of data obtained on the burst. One early result has been published in astronomical circulars, indicating the blast occurred more than 10 billion light years away — putting it, in terms of age, roughly 2 billion years after the "Big Bang." A light year is the distance light travels in one year. The Big Bang theory assumes that initially the universe existed as a single compact ball of matter that exploded, forming gaseous debris, which eventually condensed to form stars and galaxies.

Scientists expect to publish many more findings about this burst in journals. The burst — which one astronomer nicknamed Beethoven because it fell on the anniversary of the composer's birth on Dec. 16, 1770 — was one of the brightest ever recorded by BATSE. The burst's official name is GRB 991216.

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Obituary

Jimmison, James Jr., 61, from Scottsboro, Ala., died Jan. 12. He had worked at Marshall since 1976 as a security guard with Omni-Cube. He is survived by his wife, Karen Jimmison, and five living children: Johnny, James, Gerald, Charles and Loretha Sanders.

Don't gamble with safety ... the stakes are too high!

by Judy Milburn

Think for a moment. What was the last unsafe act that you performed, or what unsafe condition did you see and just walk on by.

You probably were lucky and escaped without a mishap or close call, but statistics are stacked up against you when you continuously try to beat the odds. If you woke up this morning and knew you were going to be in a car wreck today at the corner of University Drive and Jordan Lane, wouldn't you avoid that particular intersection?

NASA must provide a safe and healthful workplace. But you have the responsibility to follow the rules, procedures and use "situational awareness."

What's "situational awareness?" John Michael Magness, an international consultant and former pilot with the elite helicopter force the Nightstalkers, defines it as "a unique consciousness of one's own immediate circumstances." Each of us must be aware of what's going on around us at all times and keep safety

in the back of our mind.

Tony Kim of Marshall's Flight Projects Directorate experienced "situational awareness" during a recent wedding rehearsal.

"I noticed that the unlit candles were too close to the bride," Kim said. "Although she was not wearing her veil at the time, I knew that there was a possibility of the flames contacting her veil during the actual ceremony. I informed the wedding director, who immediately changed the configuration of the candles and the position of the bride." Kim said, "Safety has become a priority in all aspects of my life, and it is in no small part due to the Marshall Safety Policy."

Slow down and think about the safest way to perform your job at work and home. Our greatest resource at Marshall is you, and we want you back safe and in good health every day. So does your family.

The writer is a Safety and Occupational Health Specialist in the Safety and Mission Assurance Office.

Volleyball champs

The MARS Coed Volleyball Club season, which ran from August through November, ended with the Energizers as the No. 1 team in Division I and the CSC Crushers as champions of Division II. Seven teams competed during the season. Civil servants, contractors and dependents are eligible to play in the league. League play resumes in August.



Division I Champs, the Energizers: From left, Marla Schmidt, Harold Gerrish, Cheryl Alexander, Lane Alexander, Ivana Hrbud, Tom Godfroy and Bob Gaffin.



Courtesy photos

Division II Champs, the CSC Crushers: Back row, from left: Mark Duff, Natalie Kaiser, Ken Robison and Lee Krause. Front row, from left: Amy Greene and Gretchen Jones. Team members not pictured: Ginger Pierce, Richard Cowles, Aaron Cowles, Allison Duff, Kristen Lanza and Vance George.

Employee Ads

Miscellaneous

- ★ Indian arrowheads, spear points, prehistoric, large selection, reasonable prices. 353-0959
- ★ Maytag washer, needs repair; Whirlpool washer, works but needs repair, \$10 ea. 881-1249
- ★ Camper top and bedliner for Ford Ranger truck, \$150. 586-4719
- ★ Tennessee 1998 National Football Championship print, Daniel Moore, framed and double matted. 883-5114
- ★ Tire chains, \$50 pair; 6.00x12 to 145R14, 8.55x15 to P235/70R15. 864-0155
- ★ Computer monitor, new, never out of box, IBM, 15", \$115 obo. 922-0958
- ★ Boat motor, 5HP, Tohatsu w/motor dolly, \$400. 881-4340
- ★ Salomon, size 9 rear entry ski boots, \$35; K2 5500 skis, 190cm length, \$35; PRE 1200S skis, 185cm length, Salomon 547 bindings, \$100. 539-5543
- ★ Advent Laureate speakers, hard wood, in original boxes, \$300. 430-1952
- ★ Clopay 9' insulated garage door, metal clad on both sides, includes all installation hardware, \$200. 722-0076
- ★ Chime clock, keywind, \$75; camper shell, white, 69" wide x 79" long, \$100. 852-3501 after 4:30 p.m.
- ★ Custom-made solid oak corner entertainment center, holds 32" TV, \$650; matching bookcase, \$225. 881-5093
- ★ Camouflaged duck-hunting boat, 14-ft. flat bottom aluminum w/15HP Johnson outboard and trailer, \$650. 726-0211
- ★ Franklin wood-burning stove, cast-iron antique, Alabama built 1962, \$200 obo; oak office desk, \$200 obo. 864-0465
- ★ Iomega internal 100mb zip drive, brackets/iomega software included, sealed box, \$80. 837-3746
- ★ Long, black, smooth leather coat w/zipper, \$200 obo; white table & high-back office chair, both \$25 obo. 828-6213

Vehicles

- ★ 1988 Ford Taurus, 3.0L, V-6, 4-door, power doors/windows, a/c, 152K miles, \$800 obo. 461-8394
- ★ 1993 Camry LE, 4 cylinder, non-smoker, 2nd owner, all options, 91K miles, \$6,900. 230-0068
- ★ 1996 Dodge Intrepid ES, V6, 3.5L, 83K miles,

metallic red, CD, keyless entry, alarm system, \$9,600. 544-0265

Wanted

- ★ Sunbeam food processor, operational or for parts. 881-1249

Free

- ★ Husky mix puppies. 883-5395
- ★ Rug Doctor brand vacuum cleaner bags, B-14, for Panasonic upright using bags U, U-3. 895-6640
- ★ Two computers: Commodore 128; portable IBM 8088 compatible; both include software and manuals. 721-1857
- ★ Two female short-hair kittens, one black, one black & white. 828-4502 after 5 p.m.

Lost

- ★ Crystal serving platter, Bldg. 4203 on or about Dec. 16. 883-4735

Center Announcements

- ☛ **January Blood Drive** — The American Red Cross will conduct a blood drive from 8 a.m.-1:30 p.m. Friday at the NASA Exchange, Bldg. 4752. Employees are being asked to use the entrance at the South side of the building. Registration will be in front of the Multi-Purpose Room. Those unable to attend this blood drive may go to the Madison County Chapter at 1101 Washington St. in Huntsville. The schedule for Friday's blood drive is: A-B, 8 a.m.; C-F, 8:30 a.m.; G-H, 9 a.m.; I-L, 9:30 a.m.; M-O, 10 a.m.; P-S, 10:30 a.m.; and T-Z, 11 a.m. The Red Cross representatives will be available until 1:30 p.m.
- ☛ **Bus Drivers, Tour Guides Needed** — The U.S. Space & Rocket Center is looking for retired persons for part time or seasonal employment as bus drivers or tour guides. The center will assist in obtaining commercial drivers licenses. Upon completion of paid training, you will conduct bus tours of the Marshall Center. Applicants should immediately apply at the Administration Office entrance at the U.S. Space & Rocket Center, Rt. 565 South, 1 Tranquility Base, Huntsville, Ala.
- ☛ **Sealed Bid Sale** — A non-appropriated fund property sealed bid sale will be held beginning at 8:30 a.m. Jan. 24-26 at Bldgs. 7440 and 7430 on Redstone Arsenal. The property may be reviewed Jan. 24-26, or reviewed online at: <http://www.drms.com>. Bids will be accepted until the bid opening date and time. All bids will be opened Jan. 27, and the bidder awarded the

item will be notified. Bids may be faxed to (616) 961-7568, or mailed to: Defense Reutilization and Marketing Service National Sales Office, Bids P.O. Box 1280, Battle Creek, MI 49016-1280. For more information, call Booker Terry at (256) 313-0770.

- ☛ **NARFE Meets** — The National Association of Retired Federal Employees (NARFE), Chapter 736 will meet at 11 a.m. Jan. 26 at Picadilly's in Decatur. All retired federal employees are welcome and encouraged to attend. For more information, call Marty Eddy at 773-4826.
- ☛ **Blue Cross/Blue Shield Visit** — The Federal representative from Blue Cross/Blue Shield will be at the Center from 9 a.m.-11 a.m. Jan. 25 in Bldg. 4200, room 324A to assist employees with questions and claim problems.
- ☛ **American Express Vacation Office Closed** — The American Express vacation office at Marshall will be closed through Feb. 2. For vacation travel needs during this period, call American Express Travel at Kennedy Space Center at 1-800-348-4204.
- ☛ **Government Accountants Meet** — The North Alabama Chapter of the Association of Government Accountants will meet at 11 a.m. Thursday at the Huntsville Marriott. For reservations, call Sandy Seymour at 544-0099.
- ☛ **Shuttle Buddies** — The Shuttle Buddies will meet for breakfast at 9 a.m. Jan. 24 at Mullins Restaurant on Andrew Way. For more information, call Deemer Self at 881-7757 or Gail Wynn at 852-8189.
- ☛ **MOO Retirees Meet** — The Management Operations Office (MOO) retirees will meet for breakfast/lunch at 10 a.m. on Jan. 27 at the Cracker Barrel Restaurant in Madison. For more information, call 539-0042.
- ☛ **MESA Meets** — The Marshall Engineers and Scientists (MESA) will meet at 11:30 a.m. Thursday in Bldg. 4471, room C-105.
- ☛ **Weight Control** — A weight control program focusing on lifestyle, exercise, attitude, relationships and nutrition. Classes are from noon-1 p.m. beginning Jan. 25 for 10 consecutive weeks. Administrative time has been approved for this program. For more information, call 544-7570 or e-mail: Patricia.Mirandy@msfc.nasa.gov.
- ☛ **MARS Ballroom Dance Club** — The MARS Ballroom Dance Club will offer single swing and bolero lessons on Jan. 24 and 31 in the Parish Hall of St. Stephen's Episcopal Church at 8020 Whitesburg Dr. Intermediate classes start at 7 p.m. and beginner classes at 8. The lessons cost \$4 per person per night. For more information, call Linda Kinney at 544-0563.

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